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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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09/786,469

03/05/2001

Meirion Lewis

124-844

1666

7590

10/23/2003

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EXAMINER

GURZO, PAUL M

ART UNIT

PAPER NUMBER

2881

DATE MAILED: 10/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/786,469

Applicant(s)

LEWIS ET AL.

Examiner

Paul Gurzo

Art Unit

2881

-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 27-38 and 42 is/are pending in the application.
- 4a) Of the above claim(s) 1-26 and 39-41 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 27-38 and 42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 1003. 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

Claims 1-26 and 39-41 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected optical phase detector characterized in that a voltage-controlled electro-optic phase modulator is used to modulate the phase of an optical input, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 09/786,469.

Applicant's election of Species II in Paper No. 09/786,469 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 27-38 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ooi et al. (5,917,628) and further in view of Logan Jr. (5,204,640).

Regarding claims 27 and 42, 628 teaches a laser stabilization apparatus (68) for stabilizing the output (76) from a laser (61) having a frequency, comprising a frequency discriminator apparatus comprising input means (69) for receiving a primary optical input (a) from the laser (61) for producing two primary optical outputs (69a and 69b), and a means for introducing a relative delay between the two optical inputs (Fig. 1) (col. 5, line 46 - col. 7, line

48). Fig. 3 also depicts the claimed laser (84), input means (81A), primary optical input (a), two primary optical outputs (c and d), and a means for introducing a relative delay (87). In addition, both figures depict the claimed two combined optical outputs (g and h), and Fig. 1 depicts the claimed detection means for detecting the intensity of the optical outputs and combining the optical outputs into an electrical signal and a means for measuring the difference between the two signals (col. 6, lines 9-29).

628 depicts the use of a feedback means for feeding back the output difference signal (23) from the optical phase detector (20) (Fig. 9), but this means is not connected to the laser (11). However, 640 teaches that one solution to the problem of phase noise in the system is to stabilize the oscillator frequency using a feedback loop (col. 1, lines 18-22) and Fig. 2A and 2B depict this feedback to the laser (22). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a feedback means in conjunction with the laser because it will reduce phase noise in the system.

Regarding claims 28-38, it is an obvious design feature to include another frequency discriminator apparatus because this will provide to same desired goal of the operation, and the prior art teaches feedback to the laser, and different points on the laser is an obvious design choice. Further, 628 teaches the use of a modulator (63 and 64) for modulating the phase of one optical input and depicts a coupling means (85) in Fig. 1. 640 teaches the use of a differential amplifier (60), and this is fed back to the laser (Fig. 2a). 628 teaches varying the frequency between a low and high frequency (col. 3, line 16 - col. 4, line 5). It is an obvious variation of the prior art to use optical fibers of different optical path lengths. 628 also teaches that the

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optical modulation is performed at the applied voltage, and it is obvious that this voltage can be a sawtooth-like voltage waveform.

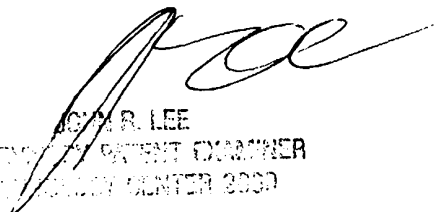
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul Gurzo whose telephone number is (703) 306-0532. The examiner can normally be reached on M-Thurs. 7:30 - 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Lee can be reached on (703) 308-4116. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

PMG
October 7, 2003


JOHN R. LEE
SUPERVISOR, PATENT EXAMINER
TECHNICAL CENTER 2881